i) a top edge of the major tooth face, that top edge comprising a forwardmost point and a rearward-most point; and

ii) a line parallel to the shaft axis from the rearward-most point to the intersection with a line directly rearward from the forwardmost point; and

(d) [opening a door at a bottom part of the mixing chamber and releasing the molten mass from the mixing chamber] a door located substantially spaced apart from and between the ends of the mixing chamber and along a bottom surface of the mixing chamber, the door being adapted to open after the feed material is mostly melted and mixed together so that the feed material can drop from the mixing chamber.

REMARKS

Claims 1-16 are rejected under 35 U.S.C. § 102 as being unpatentable over Sutter or White et al separately. Claims 1 and 10 are thrice amended in response to rejections under 35 U.S.C. §§ 102 and a requirement to phrase the claims in the form of a device.

The independent claims have been amended. Specifically, claim 1 requires a single rectangular slot with a slope from a rear point to a forward point. This step structure is not suggested by the references. The "slot" of Sutter is a countersink drill out for a collar. Sutter does not suggest the claimed slot in combination with a device that has the features of a thermokinetic mixer. Present preferred power requirements for the motor for the present device has increased to 300 to 350 horsepower.

Claim 10 is amended so that the device limitations of claim 1 are substantially repeated with a shaft extension having a top extension surface. This top extension surface is unnecessary and undesirable in Sutter and White et al as adding extra weight for no identifiable benefit. Adding that top extension surface is of use in enhancing thermokinetic impingement, a function not accomplished nor capable of being accomplished in Sutter or White et al.

Consideration of the above amendments and remarks is requested and it is submitted that such amendments and remarks place the application in a condition for allowance for claims 1-16. Applicant requests entry of amendments and allowance of such claims.

Respectfully submitted, Dated: February 6, 2003

David T. Bracken

David T. Bracken
Registration No. 37,522
Phone: (714) 744-4798

APPENDIX 1

This Appendix 1 is incorporated in the above amendment made in this application and contains the amended paragraphs of the specification and claims in the form showing stricken material in brackets and new material as underlined.

Claim Amendments

Claims: Please amend claims 1 and 10 as follows:

1. (Thrice amended) A [method for using a] thermokinetic mixer comprising:
   (a) a substantially cylindrical mixing chamber with an inside surface enclosing a shaft [rotating] connected with a motor driver outside the mixing chamber and rotatable at relatively high speed substantially about [the] an axis of the cylindrical mixing chamber, the mixing chamber [being fed] having an opening at a first end of the cylinder that communicates with a screw feeder, where the screw feeder comprises screw blades mounted on an extension of the shaft and are enclosed with a cylindrical housing open at an inlet port, the screw feeder being adapted to receive a particulate feed material comprising an effective amount of particles of polymers meltable at operating conditions [, the feed material being fed to an inlet port at an end of the mixing chamber from a screw feeder] and to deliver the feed material to the mixing chamber;
   (b) shaft extensions secured to the shaft by slot means for removing the shaft extensions when the mixing chamber is emptied and the shaft is stopped, the slot means comprising a single rectangle slot located at a base of the shaft extensions where a forward edge of the slot in the direction of rotation of the shaft has a relatively smooth transition to an outside surface of the shaft and a rearward edge of the slot is substantially stepped down from the outside surface of the shaft;
   (c) [rotating the shaft at relatively high speed until substantially all the polymer particles melt by heat generated by impingement of polymer particles on the shaft extensions and the inside surface of the mixing chamber so that a blend is formed with other portions of the feed material to form a molten mass of substantially uniform consistency and capable of being compression molded] a door located substantially spaced apart from and between the ends of the mixing chamber and along a bottom surface of the mixing chamber; and
   (d) [opening a door at a bottom part of the mixing chamber and releasing the molten mass from the mixing chamber] the door being adapted to open after the feed material is mostly melted and mixed together so that the feed material can drop from the mixing chamber[; and
   (e) stopping the shaft from rotating and removing from the shaft one or more of the shaft extensions].

10. (Thrice amended) A [method for using a] thermokinetic mixer comprising:
    (a) a substantially cylindrical mixing chamber with an inside surface enclosing a shaft [rotating] connected with a motor driver outside the mixing chamber and rotatable at relatively high speed substantially about [the] an axis of the cylindrical mixing chamber, the mixing chamber [being fed] having an opening at a first end of the cylinder that communicates with a screw feeder, where the screw feeder comprises screw blades mounted on an extension of the shaft and are enclosed with a cylindrical housing open at an inlet port, the screw feeder being adapted to receive a particulate feed material comprising an effective amount of particles of polymers meltable at operating conditions [, the feed material being fed to an inlet port at an end of the mixing chamber from a screw feeder] and to deliver the feed material to the mixing chamber during rotation of the shaft;
    (b) four or more shaft extension rows equidistantly spaced around the length of the shaft in the mixing chamber, where each shaft extension row consists of three or more shaft extensions arranged in a row lengthwise on and extending radially from the shaft, each shaft extension comprising a major tooth face oriented such that during rotation of the shaft the major tooth face passes through a plane including the shaft axis first at a sharp leading edge and thereafter only along a substantially flat or slightly curved surface extending from the leading edge rearward from the leading edge and at an [acute] angle of from 20 degrees to 70 degrees rearward from the plane, whereby when the shaft is rotated at high speed, the orientation of each major tooth face is adapted to strike more than a majority of the feed material particles that strike the shaft extension [and more than a majority of those particles strike the major tooth face] causing them to be substantially all driven to a side of the shaft extension opposite the leading edge;
    (c) [rotating the shaft at relatively high speed until substantially all the polymer particles melt by heat generated by impingement of polymer particles on the shaft extensions and the inside surface of the mixing chamber so that a blend is formed with other portions of the feed material to form a molten mass of substantially uniform consistency and capable of being compression molded] each shaft extension further comprising a top extension surface extending rearward from the direction of shaft rotation, the top extension surface being a solid surface defined by the boundaries of:
        i) a top edge of the major tooth face, that top edge comprising a forwardmost point and a rearward-most point; and
        ii) a line parallel to the shaft axis from the rearward-most point to the intersection with a line directly rearward from the forwardmost point; and
    (d) [opening a door at a bottom part of the mixing chamber and releasing the molten mass from the mixing chamber] a door located substantially spaced apart from and between the ends of the mixing chamber and along a bottom surface of the mixing chamber, the door being adapted to open after the feed material is mostly melted and mixed together so that the feed material can drop from the mixing chamber.